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(12) United States Patent Wallach et al.

(10) Patent No.:

US 6,555,111 B2

(45) Date of Patent:

Apr. 29, 2003

(54) METHOD OF INHIBITING THE CYTOCIDAL EFFECT OF THE WITH THE RECEPTOR-SPECIFIC ANTIBODIES

(75) Inventors: David Wallach, Rehovot (IL); Jacek Bigda, Gdansk (PL); Igor Beletsky,

Pushino (RU); Igor Mett, Rehovot (IL); Hartmut Engelmann, Munich (DE)

(73) Assignee: Yeda Research and Development Co. Ltd., Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 23 days.

(21) Appl. No.: 09/800,909

(22) Filed: Mar. 8, 2001

(65) Prior Publication Data

US 2001/0019833 A1 Sep. 6, 2001

Related U.S. Application Data

(60) Division of application No. 08/476,862, filed on Jun. 7, 1995, now Pat. No. 6,262,239, which is a continuation-in-part of application No. 08/321,685, filed on Oct. 12, 1994, now abandoned.

(30) Foreign Application Priority Data

Oct.	12, 1993 (L) 107267
(51)	Int. Cl. ⁷	A61K 39/395 ; C07K 16/28
(52)	U.S. Cl	424/144.1; 424/130.1;
()	424	139.1: 424/141.1; 424/143.1; 424/152.1;
	424	7172.1; 530/387.1; 530/387.9; 530/388.1;
		530/388.2; 530/388.22; 530/388.7

(56) References Cited

U.S. PATENT DOCUMENTS

				_
4,677,063	Α		6/1987	Mark et al.
4,898,818	Α		2/1990	Nakai et al.
4,948,875	Α		8/1990	Tanaka et al.
4,990,455	Α		2/1991	Yamagishi et al.
5,344,915	Α		9/1994	LeMaire
6,232,446	B 1	•	5/2001	Wallach et al.
6 262 230		•	7/2001	Wallach et al.

FOREIGN PATENT DOCUMENTS

AU	58976/90	1/1991
EP	0 334 185 A2	9/1989
EP	0 398 327 B1	11/1990
EP	0398327	11/1990
EP	0 418 014	3/1991
EP	0 643 783 B1	4/1995
wo	WO 90/13575	11/1990

OTHER PUBLICATIONS

Krakauer et al. in Paul (Ed.) Fundamental Immunology Fourth Edition, Lippincott—Raven Publishers, Philadelphia PA 1999, pp. 775-784.*

Skulnick et al. Trends Biotech. 18: 34-39 (2000).*

Ngo et al. In the Protein Folding Problem and Terdary Structure Prediction, Merz et al. (Ed.) Birkhouser Boston MA 1994, pp. 433, 492–495.*

Lederman et al. Molecular immunology 28: 1171-1181 (1991).*

Li et al. Pnas 77: 3211-3214 (1990).*

Balavoine et al, "Prostaglandin E_2 and Collagenase Production by Fibroblasts and Synovial Cells is Regulated by Urine-Derived Human Interleukin 1 and Inhibitor(s)", J. Clin Invest 78:1120-1124 (1986).

Beutler et al, "Passive Immunization against Cachectin/ Tumor Necrosis Factor Protects Mice from Lethal Effect of Endotoxin", *Science* 229:869–871 (1985).

Beutler et al, "Cachectin: More than a Tumor Necrosis Factor", New Eng J Med 316(7):379-385 (1987).

Beutler et al, *Tumor Necrosis Factors* . . . , Raven Press, New York, pp. 145, 383 (1992).

Bigda et al, "Dual Role of the p75 Tumor Necrosis Factor (TNF) Receptor in TNF Cytotoxicity", *J Exp Med* 180:445-460 (1994).

Brockhaus et al, "Monoclonal Antibodies against the TNF-Receptor Inhibit ...", 2nd Int'l Conf. Tumor Necrosis Factor and Related Cytokines, Jan. 15-20, 1989, p. 140. Brockhaus et al, "Identification of two types of tumor necrosis factor receptors on human cell lines by monoclonal antibodies", *Proc Natl Acad Sci USA* 87(8):3127-3131 (1990).

Chen et al, "Mapping the domain(s) critical for the binding of human tumor necrosis factor-alpha to its two receptors", *J Biol Chem* 270(6):2874-2878 (1995) (Abstract).

Corcoran et al, "Characterization of ligand binding by the human p55 tumour-necrosis-factor receptor. Involvement of individual cysteine-rich repeats", Eur J Biochem 223(3):831-840 (1994).

Creasey et al, "Biological Effects of Recombinant Human Tumor Necrosis Factor and Its Novel Muteins on Tumor and Normal Cell Lines", Cancer Research 47:145–149 (1987). Engelmann et al, "Two Tumor Necrosis Factor-binding Proteins Purified from Human Urine", J Biol Chem 265(3):1531–1536 91990).

Harris et al, "Therapeutic antibodies-13 the coming of age", TIBTECH 11:42:44 (1993).

Hohmann et al, "Two Different Cell Types Have Different Major Receptors for Human Tumor Necrosis Factor (TNFalpha)", J Biol Chem 264(25)14927–14934 (1989).

(List continued on next page.)

Primary Examiner—Phillip Gambel (74) Attorney, Agent, or Firm—Browdy and Neimark, P.L.L.C.

(57) ABSTRACT

Antibodies to Tumor Necrosis Factor receptors (TNF-Rs) which inhibit the cytocidal effect of TNF but not its binding to the TNF-Rs, and ligands interacting with other receptors of the TNF/NGF family, are provided together with methods of producing them. The antibodies preferably bind to the fourth cysteine rich domain of the p75 TNF receptor or to the region between said fourth cysteine rich domain and the cell membrane.

3 Claims, 9 Drawing Sheets